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CLAIMS

[Claim(s)]

[Claim 1]

It has the 1st change door which leads to an exit cone, and the 2nd change door arranged at them of the 1st change door. Said 1st change door and said 2nd change door While being formed in the cross-section abbreviation U shape which is equipped with the head-lining wall connected with the end of a both-sides wall and a both-sides wall by intersecting perpendicularly, respectively, and has an air duct in between, it is air conditioning wind distribution equipment in the car with which said 1st change door and said 2nd change door are arranged by approaching,

A part of said 1st change door and said 2nd change door are air conditioning wind distribution equipment in the car characterized by for said 1st change door having the concave section or the letter section of beveling to the part with said 2nd change door which carries out a polymerization, and forming it in it while carrying out a polymerization and being arranged.

[Claim 2]

Air conditioning wind distribution equipment in the car according to claim 1 characterized by forming said concave section by constituting the flank of said 1st change door in the two-step wall of the outer wall section and the wall section.

[Claim 3]

Air conditioning wind distribution equipment in the car according to claim 1 characterized by being formed when said letter section of beveling cuts the corner of said head-lining wall and said both-sides wall in the shape of beveling and lacks it.

[Claim 4]

Air conditioning wind distribution equipment in the car according to claim 1, 2, or 3 with which said 2nd change door is characterized by said 1st change door and formed in an abbreviation same configuration.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

This invention relates to the air conditioning wind distribution equipment in the car constituted in more detail so that two or more exit cones might be changed at the 1st change door and the 2nd change door about the air conditioning wind distribution equipment in a car.

[0002]

[Description of the Prior Art]

the air conditioning wind distribution equipment in a car adjust the air in the condition of having mix cold, pre-heating or cold, and pre-heating so that it may change toward the exit cone by the side of a backseat further each part of the vehicle interior of a room, for example, near a windshield, (DEF), and a near [a passenger face (FACE)] side or a step (FOOT) side, and from the former, since it equipped with take a large tooth space and other equipment, space-saving-ization be called for. For example, especially the air conditioning wind distribution equipment 100 shown in drawing 9 is used for the auto air-conditioner etc., and it was constituted so that an evaporator 105 and a heater 107 might install horizontally.

[0003]

The air blasting room 102 where, as for this type of air conditioning wind distribution equipment 100, the case 101 was formed oblong horizontally, and Blois 103 has been arranged, The aeration way 104 equipped with the cooling path 106 which ventilates cold through an evaporator 105, and the heating path 108 which ventilates pre-heating through the heater core 107, It is constituted so that the air mix room 109 where it has each exit cone 110 for DEF110 A-FACE110 B-FOOT110C, and cold and pre-heating are arranged possible [mixing] may install horizontally. Bashful and the open air change door 111 which changes bashful and the open air to the air blasting room 102 are arranged, the air mix door 112 is arranged on the aeration way 104, and one change door 113 is arranged every exit cone 110 at each air mix room 109, respectively. An end is supported to revolve with a tabular door, each change door 113 is constituted rotatable, and the closing motion operation is performed by manual operation or the servo motor.

[0004]

However, although this type of air conditioning wind distribution equipment could be used in an auto air-conditioner type very effectively by the car with a big car body, since it is horizontally formed in the shape of oblong as mentioned above, a large tooth space will be taken, and structural amelioration was demanded of the car formed by compact design.

[0005]

Therefore, as shown in drawing 10 , while approaching, having arranged the evaporator 122 and the heater core 123 and using a case 121 as a compact, the number of the change doors 130 for exit-cone 125 was decreased, and the compact air conditioning wind distribution equipment 120 the location of a change door was made to approach as much as possible came to be developed very much.

[0006]

Generally the change door 130 used with the air conditioning wind distribution equipment 120 constituted by this compact is called a rotary door, and as shown in drawing 11 , the rotary door 130 is equipped with the head-lining wall 132 connected with the end of the both-sides wall 131-131 and the both-sides wall 131-131 by intersecting perpendicularly, and is formed in the cross-section KO typeface. The both-sides wall 131 is formed in the shape of a side view abbreviation triangle, and the shank 133-133 which takes the rotation lead in the rotary door 130 at the lower top-most-vertices section is arranged, respectively. Moreover, the periphery of the both-sides wall 131-131 and the head-lining wall 132 was equipped with the seal member 134, and the air leak from the case 121 of air conditioning wind distribution equipment 120 is prevented. Opening which the head-lining wall 132 is formed possible [cutoff of each exit cone 125], and is formed between the both-sides wall 131-131 and the head-lining wall 132 is formed as an air duct 135.

[0007]

As shown in 120 and drawing 10 , in order to change the air which blows off to each exit cone 125 for DEF-FACE-FOOT in the air mix room 124 which the cold which flows through an evaporator 122, and the pre-heating which flows through the heater core 123 mix, it arranges and the conventional new air-conditioning wind-distribution equipment which uses this rotary door 130 is constituted so that it may rotate possible [closing motion of two rotary door 130A and 130B]. Primary exit-cone 125A which goes the air by which 1st rotary door 130A passed along the evaporator 122 or the heater core 123 to both exit cones for DEF-FACE, It is arranged for the change with exit-cone 125C for FOOT. 2nd rotary door 130B It is arranged so that the air ventilated by primary exit-cone 125A for DEF-FACE may be used as an object for the change of each exit cone of exit-cone 125D for DEF, and exit-cone 125B for FACE. Therefore, 1st rotary door 130A will be arranged at the upstream of 2nd rotary door 130B.

[0008]

[Problem(s) to be Solved by the Invention]

However, in order to equip with other equipment or to lightweight-ize, when making still smaller the surrounding tooth space of air conditioning wind distribution equipment and attaining space-saving-ization, it will be necessary to constitute also from conventional new air conditioning wind distribution equipment 120 which uses the rotary door 130 mentioned above in a compact further. With above air conditioning wind distribution equipment 120, although two rotary door 130A and 130B approach and is arranged, since [to pile up] it is not arranged like, examination which constitutes so that two rotary door 130A and 130B may be piled up mutually, and is used as a compact has been made. In this case, since 1st rotary door 130A is arranged in air duct 135B of 2nd rotary door 130B, it will make the 1st rotary door 130A itself smaller than 2nd rotary door 130B, will make small the cross section of air duct 135A of 1st rotary door 130A, and makes the capacity of the air which ventilates decrease, when it arranges so that it may pile up simply and may suit as shown in drawing 12 . The air which blows off from primary exit-cone 125A which goes to exit-cone 125B for FACE needs to make [many] capacity, and the capacity cannot be lessened, but new amelioration was to be called for, since especially the air that passes along air duct 135 of 1st rotary door 130A A is arranged so that an air blasting change may be performed to exit-cone 125B for FACE arranged at the downstream.

[0009]

This invention aims at offering the air conditioning wind distribution equipment in the car which can constitute in a compact more and can moreover advance space-saving-ization further, without solving an above-mentioned technical problem and making small the air duct cross section of a rotary door.

[0010]

[Means for Solving the Problem]

In order that the air conditioning wind distribution equipment in the car concerning this invention may solve the above-mentioned technical problem, in invention according to claim 1 The 1st change door and the 2nd change door are constituted so that the 1st change door may be approached and the 2nd change door may be arranged, while forming in the cross-section abbreviation KO typeface which is equipped with the head-lining section connected with the end of a both-sides wall and a both-sides wall

by intersecting perpendicularly, respectively, and has an air duct in between.

[0011]

And said 2nd change door is arranged so that a polymerization may be carried out to the concave section or the notching section formed in said 1st change door for a part.

[0012]

According to this, the air ventilated through the evaporator or the heater core is ventilated by one of exit cones by the 1st change door. For example, when three exit cones are arranged, the 1st change door will change two exit cones and other one exit cone, and the air ventilated by two exit cones will be further ventilated toward one of exit cones between two exit cones opened by the 2nd change door.

[0013]

Under the present circumstances, although a polymerization is carried out and it is arranged, since the overlapping part with the 2nd change door has a concave or a notch and is formed, a part of 1st change door and 2nd change door can arrange the 1st change door, without narrowing the air duct of the 1st change door. Therefore, it can ventilate without decreasing most capacity of the air which passes along the air duct of the 1st change door, and, moreover, the part of the 1st change door and the 2nd change door which carries out a polymerization a part, and equipment can be constituted in a compact.

[0014]

moreover, from said concave section being formed by constituting the flank of said 1st change door in the two-step wall of the outer wall section and the wall section according to invention according to claim 2 While being able to constitute the air duct of the 1st change door, without decreasing so much, the polymerization of the 1st change door and the 2nd change door can be carried out only by narrowing some both-sides walls of the 1st change door, and that much compact air conditioning wind distribution equipment can be offered.

[0015]

moreover, from according to invention according to claim 3, forming so that said letter section of beveling may cut the corner of a head-lining wall and a both-sides wall in the shape of beveling and may lack it the part which the reduction area which decreases by beveling a corner does not enlarge percentage reduction of the gross area of an air duct so much, and is in the condition which maintained mostly the blast weight which passes along an air duct, and carries out the polymerization of the 1st change door and the 2nd change door -- compact air conditioning wind distribution equipment can be offered.

[0016]

Moreover, cost reduction can be planned, while according to invention according to claim 4 not manufacturing two kinds of change doors and improving the effectiveness on management, since the 1st change door and the 2nd change door are the same configurations.

[0017]

[Embodiment of the Invention]

Hereafter, 1 operation gestalt of this invention is explained based on a drawing.

[0018]

In order to be able to use it suitably as air conditioning wind distribution equipment for cars and to arrange the change door for exit cones by space-saving, the air conditioning wind distribution equipment of an operation gestalt is what improved a part of conventional rotary door, and is used.

[0019]

The air conditioning wind distribution equipment 1 of an operation gestalt is equipped with the evaporator room 3 and the heater core room 4 which have been arranged in a case 2, and the air mix room 5 as shown in drawing 1 . Air ventilated from the Blois room which does not arrange and illustrate an evaporator 31 in the evaporator room 3 is made into cold by the evaporator 31, air which it is made to send to the heater core room 4 or the air mix room 5, has arranged the heater core 41 in the heater core room 4, and turned into cold at the evaporator room 3 is made into pre-heating, and it enables it to send to the air mix room 5. And the rotatable air mix door 6 is arranged and it enables it to divide the heater core room 4 or the air mix room 5 possible [closing motion] by the air mix door 6 between the

evaporator room 3, the heater core room 4 and the evaporator room 3, and the air mix room 5.

[0020]

An exit cone 7 is formed in the three directions, and the 1st rotary door 8 and the 2nd rotary door 9 which open and close each exit cone 7 are arranged rotatable at the air mix room 5. Exit-cone 7 for DEF A by which each exit cone 7 in an operation gestalt is arranged between contact wall 2a within a case 2, and 2b sequentially from the upper part among drawing 1 . It is formed as exit-cone 7C for FOOT arranged in contact wall 2b, exit-cone 7 for FACE B arranged among 2c and contact wall 2c, and 2d. Exit-cone 7A for DEF and exit-cone 7B for FACE are formed as primary exit-cone 7D which doubles and is arranged between contact wall 2a and 2c. And exit-cone 7A for DEF and exit-cone 7B for FACE are arranged at them of primary exit-cone 7D.

[0021]

The 1st rotary door 8 is arranged so that primary exit-cone 7D and exit-cone 7C for FOOT containing both exit cones with exit-cone 7B for exit-cone 7 A-FACE for DEF may be changed. It is arranged so that the both-sides wall 81-81 (refer to drawing 2) of the 1st rotary door 8 may be straddled, and the 2nd rotary door 9 is arranged so that exit-cone 7A for DEF and exit-cone 7B for FACE may be changed, while it arranges a shank 93 (refer to drawing 2) in upstream exit-cone 7D.

[0022]

The 1st rotary door 8 by the 1st gestalt has the both-sides wall 81-81, the head-lining wall 82, and a shank 83-83, as shown in drawing 2 -3, the cross section of a longitudinal direction is formed in an abbreviation U shape, and the edge periphery of the both-sides wall 81-81 and the head-lining wall 82 is equipped with the seal member 84. While a side attachment wall 81 has outer wall section 81a and wall section 81b by the shape of an abbreviation triangle and is formed a ** with two steps of stages, a head-lining wall side is formed as the concave section 85. As for the concave section 85 of a side attachment wall 81, it is desirable to form so that it may have the clearance which can insert the side attachment wall of the 2nd rotary door 9. Opening formed between the both-sides wall 81-81 and the head-lining wall 82 is formed as an air duct 86, and serves as a path as the ventilated air.

[0023]

The 2nd rotary door 9 of the 1st gestalt has the both-sides wall 91-91, the head-lining wall 92, and a shank 93-93, the cross section of a longitudinal direction is formed in an abbreviation U shape, and the edge periphery of the both-sides wall 91-91 and the head-lining wall 92 is equipped with the seal member 94. The side attachment wall 91 is formed in the shape of an abbreviation triangle. Opening formed between the both-sides wall 91-91 and the head-lining wall 92 is formed as an air duct 96, and serves as a path as the ventilated air.

[0024]

And with the 1st operation gestalt, while the 1st rotary door 8 and the 2nd rotary door 9 are arranged toward this direction, a polymerization is carried out a part and the 2nd rotary door 9 is arranged so that the both-sides wall 91-91 may insert in the concave section 85-85 of the both-sides wall 81-81 of the 1st rotary door 8. Therefore, the head-lining wall 82 of the 1st rotary door 8 will be inserted into the air duct 96 of the 2nd rotary door 9.

[0025]

The concave section 85 formed in the 1st rotary door 8 As are shown in drawing 2 , and the joint of outer wall section 81a and wall section 81b which are formed in two steps may be formed in the shape of [of a right angle] L character and it is shown in drawing 4 You may form so that L character-like pars-basilaris-ossis-occipitalis 81c may be inclined, and it curves and you may make it form 81d of L character-like partes basilaris ossis occipitalis further, as shown in drawing 5 .

[0026]

The 1st rotary door 8 is arranged rotatable to the location where the front face of the seal member 84 with which the right end face is equipped contacts 2d of contact walls from the location where the front face of the seal member 84 with which the left end side is equipped focusing on the shank 83 in the air mix room 5 contacts contact wall 2a, as shown in drawing 1 .

[0027]

In addition, in the condition that the front face of the seal member 84 at the left end of the 1st rotary door 8 is in contact with contact wall 2a, the rear face of a right end seal member will be in contact with contact wall 2c, and intercepts primary diffuser 7D by the head-lining wall 82 and the side attachment wall 81. Moreover, in the condition that the front face of the seal member 84 of the right end face of the 1st rotary door 8 is in contact with 2d of contact walls, the rear face of the seal member 84 of the left end side of the 1st rotary door 8 will be in contact with contact wall 2c, and intercepts exit-cone 7C for FOOT by the head-lining wall 82 and the side attachment wall 81.

[0028]

The 2nd rotary door 9 is arranged rotatable to the location where the front face of the seal member 94 with which the right end face is equipped contacts contact wall 2c from the location where the front face of the seal member 94 with which is arranged in the air mix room 5 at them of the 1st rotary door 8, and the left end side is equipped focusing on the shank 93 contacts contact wall 2a.

[0029]

In addition, in the condition that the front face of the seal member 94 at the left end of the 2nd rotary door 9 is in contact with contact wall 2a, the rear face of a right end seal member will be in contact with contact wall 2b, and intercepts diffuser 7A for DEF by the head-lining wall 92 and the side attachment wall 91. Moreover, in the condition that the front face of the seal member 94 of the right end face of the 2nd rotary door 9 is in contact with contact wall 2c, the rear face of the seal member 94 of the left end side of the 2nd rotary door 9 will be in contact with contact wall 2b, and intercepts exit-cone 7B for FACE by the head-lining wall 92 and the side attachment wall 91.

[0030]

Next, an operation of the air conditioning wind distribution equipment 1 formed as mentioned above is explained.

[0031]

The air ventilated from Blois which is not illustrated turns into cold through an evaporator 31, and flows in the heater core room 4 or the air mix room 5. Under the present circumstances, when ventilating the vehicle interior of a room in cold, it rotates clockwise and the air mix door 6 is made to contact contact wall 2e within a case 2 among drawing 1. Then, the heater core room 4 is intercepted and cold flows into the direct air mix room 5. Moreover, when ventilating the vehicle interior of a room in pre-heating, a counterclockwise rotation is rotated and the air mix door 6 is made to contact 2f of contact walls among drawing 1. Then, the air mix room 5 is intercepted by the air mix door 6, by cold's flowing into the heater core room 4, and passing the heater core 41, is replaced with pre-heating and flows into the air mix room 5 from the heater core room 4. Furthermore, when ventilating the vehicle interior of a room in the mixed thing of cold and pre-heating, the air mix door 6 is rotated to the contact walls [2e and 2f] mid-position. In this case, the air mix door 6 is brought close to the contact wall 2e side to strengthen cold, and the air mix door 6 is brought close to 2f side of contact walls to strengthen pre-heating. Then, a part flows in the heater core room 4, the cold which passed along the evaporator 31 flows in the air mix room 5 as pre-heating through the heater core 41, and other parts flow in the direct air mix room 5 with cold. At the air mix room 5, cold and pre-heating are mixed, and it becomes moderate temperature, and is ventilated by the vehicle interior of a room.

[0032]

Next, the air which flowed into the air mix room 5 will blow off to each exit-cone 7 empty-vehicle interior of a room with the rotation location of the 1st rotary door 8 or the 2nd rotary door 9.

[0033]

When blowing off air to a windshield, the 1st rotary door 8 is clockwise rotated among drawing 1, 2d of contact walls is contacted in the right end seal member 84, and the 2nd rotary door 9 is rotated clockwise and the right end seal member 94 is made to contact contact wall 2c. While intercepting exit-cone 7C for FOOT with the head-lining wall 82 of the 1st rotary door 8 and ventilating primary diffuser 7D by this, exit-cone 7B for FACE is intercepted with the head-lining wall 92 of the 2nd rotary door 9, and cold, pre-heating, or mixed air is blown off from exit-cone 7 for DEF A toward a windshield. That is, it is mixed with the pre-heating by which only cold passed along the heater core room 4 through the air duct

86 of the 1st rotary door 8, and the cold which flowed into the direct air mix room 5 through the evaporator 31 blows off to the vehicle interior of a room through exit-cone 7A for primary exit-cone 7D and DEF.

[0034]

Next, when blowing off air to a passenger's face, the 1st rotary door 8 is clockwise rotated among drawing 1, 2d of contact walls is contacted in the right end seal member 84, and the 2nd rotary door 9 is rotated counterclockwise and the left end seal member 94 is made to contact contact wall 2a. While intercepting exit-cone 7C for FOOT with the head-lining wall 82 of the 1st rotary door 8 and ventilating primary diffuser 7D by this, exit-cone 7A for DEF is intercepted with the head-lining wall 92 of the 2nd rotary door 9, and cold, pre-heating, or mixed air is blown off from exit-cone 7 for DEF A toward a passenger's face side. That is, it is mixed with the pre-heating by which only cold passed along the heater core room 4 through the air duct 86 of the 1st rotary door 8, and the air duct 96 of the 2nd rotary door 9, and the cold which flowed into the direct air mix room 5 through the evaporator 31 blows off to the vehicle interior of a room through exit-cone 7B for primary exit-cone 7D and FACE.

[0035]

under the present circumstances, from more the air capacity which blows off to a face side than the air capacity which blows off to a step or a windshield Although the amount of openings of the air duct 86 of the 1st rotary door 8 cannot be made small, the part as for which the 2nd rotary door 9 is carrying out the polymerization to the 1st rotary door 8 Since it is a part of concave sections 85 of the side attachment wall 81 of the 1st rotary door 8, the decrement of the amount of openings of an air duct 86 is made small, and air capacity is not decreased so much. And the concave section 85 does not decrease the amount of openings of an air duct 86 by this, either, without making high the projection height from the pars basilaris ossis occipitalis of the contact walls [of the case 2 which contacts when the 1st rotary door 8 rotates / 2a and 2d] case 2, since the height of the whole 1st rotary door 8 is not made low.

[0036]

Next, when blowing off air underfoot, the 1st rotary door 8 is rotated to the inside of drawing 1, and a counterclockwise rotation, and the left end seal member 84 is made to contact contact wall 2a. Since the 2nd rotary door 9 is intercepting primary exit-cone 7D with the head-lining wall 82 of the 1st rotary door 8 in this condition, it is uninfluential even if it is in which location. By this, cold, pre-heating, or mixed air blows off underfoot through exit-cone 7C for FOOT. That is, it is mixed with the pre-heating by which only cold passed along the heater core room 4 through the air duct 86 of the 1st rotary door 8, and the cold which flowed into the direct air mix room 5 through the evaporator 31 blows off to the vehicle interior of a room through exit-cone 7C for FOOT.

[0037]

In addition, blow off of air is performed in five steps of modes, and the mode of F/D which blows off to both by the side of the bilevel (B/L) and step which blow off to both by the side of the face and a step other than the mode of the above-mentioned three-stage, and a windshield is usually formed. In the case of a bilevel, the 1st rotary door 8 is arranged to the contact walls [2a and 2d] mid-position, and it rotates the 2nd rotary door 9 in the location (condition which contacts contact wall 2a in the left end seal member 94) where exit-cone 7A for DEF is intercepted. The cold, the pre-heating, or the mixed air which flowed in the air mix room 5 passes upstream exit-cone 7D by one side, is ventilated by exit-cone 7B for FACE, and is ventilated on the other hand by this at exit-cone 7C for FOOT.

[0038]

Moreover, in blowing off to both a step and a windshield (F/D), the 1st rotary door 8 is arranged to the contact walls [2a and 2d] mid-position, and it rotates the 2nd rotary door 9 in the location (condition which contacts contact wall 2b in the right end seal member 94) where exit-cone 7B for FACE is intercepted. The cold, the pre-heating, or the mixed air which flowed in the air mix room 5 passes upstream exit-cone 7D by one side, is ventilated by exit-cone 7A for DEF, and is ventilated on the other hand by this at exit-cone 7C for FOOT.

[0039]

As mentioned above, the air mix door 6 arranges the air which turned into cold through the evaporator

31 so that it may change to the heater core room 4 and the air mix room 5, and in the air mix room 5, it constitutes it from air conditioning wind distribution equipment 1 of an operation gestalt so that it may change, respectively at two rotary doors (the 1st rotary door 8 and the 2nd rotary door 9) approached and arranged to three exit cones 7. Since it is made to arrange further so that the polymerization of the 1st rotary door 8 and the 2nd rotary door 9 may be carried out while being able to form the compact case 2 and being able to attain space-saving-ization by this, a case 2 can be further formed in a compact.

[0040]

And by making the side attachment wall 81 of the 1st rotary door 8 into the ** with two steps of stages of outer wall section 81a and wall section 81b, and forming the concave section 85, in case the polymerization of the 1st rotary door 8 and 2nd rotary door 9 is carried out Since reduction of the cross section of the air duct 86 of the 1st rotary door 8 was formed slightly, it can form in a compact, without decreasing so much the air capacity which blows off to the FOOT side through an air duct 86. And since the concave section 85 does not make the height of the 1st rotary door 8 low, it does not have to make high the projection height from the pars basilaris ossis occipitalis of the contact walls [of a case 2 / 2a and 2d] case 2, and does not decrease the amount of openings of an air duct 86 by this.

[0041]

Next, the 1st rotary door 10 by the 2nd gestalt forms the letter section 15 of beveling in the articulated section of the both-sides wall 11-11 and the head-lining wall 12, as shown in drawing 6 , and the cross-section configuration of a longitudinal direction is formed in the abbreviation U shape by the both-sides wall 11-11 by the shape of an abbreviation triangle like the 1st rotary door 8 of the 1st gestalt. The shank 13-13 rotating around the 1st rotary door 10 is arranged, and opening between the both-sides wall 11-11 and the head-lining wall 12 is formed in the edge of the both-sides wall 11-11 as an air duct 16.

[0042]

And the 2nd rotary door is the same as that of the 2nd rotary door 9 of the 1st gestalt, and the both-sides wall 91-91 and shank 93-93 of the 2nd rotary door 9 will carry out a polymerization to the letter section 15 of beveling of the 1st rotary door 10. Therefore, at the 1st rotary door 10 of this gestalt, since the part in which the letter section 15 of beveling is formed, and an air duct 16 are only decreased, there is little reduction of the whole amount of openings, and there is little reduction of the air capacity which blows off from exit-cone 7 for FACE B by this. And in the letter section 15 of beveling, the 2nd rotary door 9 can form in a compact the part and equipment which carry out a polymerization, and can attain space-saving-ization.

[0043]

As the 2nd rotary door makes the same configuration as the 1st rotary door and the rotary door by the 3rd gestalt is shown in drawing 7 -8 If the side attachment wall 81 of the 1st rotary door 8 has outer wall section 81a and wall section 81b and forms the concave section 85 While the 2nd rotary door 20 also has the both-sides wall 21-21 and the head-lining wall 22, a longitudinal direction cross-section configuration is formed in an abbreviation U shape and opening between the both-sides wall 21-21 and the head-lining wall 22 is formed as an air duct 26 A side attachment wall 21 is formed in the shape of an abbreviation triangle, and forms the concave section 25 between outer wall section 21a and wall section 21b.

[0044]

The both-sides wall 21-21 will insert the 2nd rotary door 20 of this gestalt in the concave section 85 of the 1st rotary door 8, it will carry out the polymerization of the 1st rotary door 8 and the 2nd rotary door 20 in part, and it will be arranged.

[0045]

Therefore, by forming the 2nd rotary door 20 of this gestalt in the same configuration as the 1st rotary door 8, components can be made to serve a double purpose, and while improving the effectiveness on management, cost reduction-ization can be attained.

[0046]

In addition, although the air duct 26 of the 2nd rotary door 20 will decrease by making the 2nd rotary door 20 into the same configuration as the 1st rotary door 8, like the 1st rotary door 8, the percentage

reduction is slight and does not influence the whole air capacity so much.

[0047]

Moreover, in the 3rd gestalt, if the 1st rotary door forms the letter section 15 of beveling in the articulated section between the both-sides wall 11-11 and the head-lining wall 12 as shown in drawing 6, of course, the 2nd rotary door 20 will form the letter section of beveling.

[Brief Description of the Drawings]

[Drawing 1] It is the simple flat-surface sectional view showing the air conditioning wind distribution equipment by one gestalt of this invention.

[Drawing 2] It is the simple front view showing the polymerization condition of the 1st rotary door and the 2nd rotary door in drawing 1.

[Drawing 3] It is a simple side elevation in drawing 2.

[Drawing 4] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 5] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 6] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 7] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 8] It is a simple side elevation in drawing 7.

[Drawing 9] It is the simple top view showing conventional air conditioning wind distribution equipment.

[Drawing 10] It is the simple top view showing the conventional new air conditioning wind distribution equipment which improved conventional air conditioning wind distribution equipment.

[Drawing 11] It is the perspective view showing the rotary door used for the air conditioning wind distribution equipment of drawing 10.

[Drawing 12] It is the simple front view showing the polymerization condition of the 1st rotary door and the 2nd rotary door in drawing 11.

[Description of Notations]

1 Air Conditioning Wind Distribution Equipment

2 Case

3 Evaporator Room

4 Heater Core Room

5 Air Mix Room

7 Exit Cone

7A The exit cone for DEF

7B The exit cone for FACE

7C The exit cone for FOOT

7D Primary exit cone

8 Ten The 1st rotary door

9 20 The 2nd rotary door

11, 21, and 81 Side attachment wall

11a, 21a, and 81a Outer wall section

11b, 21b, and 81b Wall section

12, 22, and 82 Head-lining wall

15 Letter Section of Beveling

25 85 Concave section

16, 26, 86, and 96 Air duct

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention]

This invention relates to the air conditioning wind distribution equipment in the car constituted in more detail so that two or more exit cones might be changed at the 1st change door and the 2nd change door about the air conditioning wind distribution equipment in a car.

[0002]

[Translation done.]

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PRIOR ART

[Description of the Prior Art]

the air conditioning wind distribution equipment in a car adjust the air in the condition of having mix cold, pre-heating or cold, and pre-heating so that it may change toward the exit cone by the side of a backseat further each part of the vehicle interior of a room, for example, near a windshield, (DEF), and a near [a passenger face (FACE)] side or a step (FOOT) side, and from the former, since it equipped with take a large tooth space and other equipment, space-saving-ization be called for. For example, especially the air conditioning wind distribution equipment 100 shown in drawing 9 is used for the auto air-conditioner etc., and it was constituted so that an evaporator 105 and a heater 107 might install horizontally.

[0003]

The air blasting room 102 where, as for this type of air conditioning wind distribution equipment 100, the case 101 was formed oblong horizontally, and Blois 103 has been arranged, The aeration way 104 equipped with the cooling path 106 which ventilates cold through an evaporator 105, and the heating path 108 which ventilates pre-heating through the heater core 107, It is constituted so that the air mix room 109 where it has each exit cone 110 for DEF110 A-FACE110 B-FOOT110C, and cold and pre-heating are arranged possible [mixing] may install horizontally. Bashful and the open air change door 111 which changes bashful and the open air to the air blasting room 102 are arranged, the air mix door 112 is arranged on the aeration way 104, and one change door 113 is arranged every exit cone 110 at each air mix room 109, respectively. An end is supported to revolve with a tabular door, each change door 113 is constituted rotatable, and the closing motion operation is performed by manual operation or the servo motor.

[0004]

However, although this type of air conditioning wind distribution equipment could be used in an auto air-conditioner type very effectively by the car with a big car body, since it is horizontally formed in the shape of oblong as mentioned above, a large tooth space will be taken, and structural amelioration was demanded of the car formed by compact design.

[0005]

Therefore, as shown in drawing 10 , while approaching, having arranged the evaporator 122 and the heater core 123 and using a case 121 as a compact, the number of the change doors 130 for exit-cone 125 was decreased, and the compact air conditioning wind distribution equipment 120 the location of a change door was made to approach as much as possible came to be developed very much.

[0006]

Generally the change door 130 used with the air conditioning wind distribution equipment 120 constituted by this compact is called a rotary door, and as shown in drawing 11 , the rotary door 130 is equipped with the head-lining wall 132 connected with the end of the both-sides wall 131-131 and the both-sides wall 131-131 by intersecting perpendicularly, and is formed in the cross-section KO typeface. The both-sides wall 131 is formed in the shape of a side view abbreviation triangle, and the shank 133-133 which takes the rotation lead in the rotary door 130 at the lower top-most-vertices section is

arranged, respectively. Moreover, the periphery of the both-sides wall 131-131 and the head-lining wall 132 was equipped with the seal member 134, and the air leak from the case 121 of air conditioning wind distribution equipment 120 is prevented. Opening which the head-lining wall 132 is formed possible [cutoff of each exit cone 125], and is formed between the both-sides wall 131-131 and the head-lining wall 132 is formed as an air duct 135.

[0007]

As shown in 120 and drawing 10 , in order to change the air which blows off to each exit cone 125 for DEF-FACE-FOOT in the air mix room 124 which the cold which flows through an evaporator 122, and the pre-heating which flows through the heater core 123 mix, it arranges and the conventional new air-conditioning wind-distribution equipment which uses this rotary door 130 is constituted so that it may rotate possible [closing motion of two rotary door 130A and 130B]. Primary exit-cone 125A which goes the air by which 1st rotary door 130A passed along the evaporator 122 or the heater core 123 to both exit cones for DEF-FACE, It is arranged for the change with exit-cone 125C for FOOT. 2nd rotary door 130B It is arranged so that the air ventilated by primary exit-cone 125A for DEF-FACE may be used as an object for the change of each exit cone of exit-cone 125D for DEF, and exit-cone 125B for FACE. Therefore, 1st rotary door 130A will be arranged at the upstream of 2nd rotary door 130B.

[0008]

[Translation done.]

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]

However, in order to equip with other equipment or to lightweight-ize, when making still smaller the surrounding tooth space of air conditioning wind distribution equipment and attaining space-saving-ization, it will be necessary to constitute also from conventional new air conditioning wind distribution equipment 120 which uses the rotary door 130 mentioned above in a compact further. With above air conditioning wind distribution equipment 120, although two rotary door 130A and 130B approach and is arranged, since [to pile up] it is not arranged like, examination which constitutes so that two rotary door 130A and 130B may be piled up mutually, and is used as a compact has been made. In this case, since 1st rotary door 130A is arranged in air duct 135B of 2nd rotary door 130B, it will make the 1st rotary door 130A itself smaller than 2nd rotary door 130B, will make small the cross section of air duct 135A of 1st rotary door 130A, and makes the capacity of the air which ventilates decrease, when it arranges so that it may pile up simply and may suit as shown in drawing 12 . The air which blows off from primary exit-cone 125A which goes to exit-cone 125B for FACE needs to make [many] capacity, and the capacity cannot be lessened, but new amelioration was to be called for, since especially the air that passes along air duct 135 of 1st rotary door 130A A is arranged so that an air blasting change may be performed to exit-cone 125B for FACE arranged at the downstream.

[0009]

This invention aims at offering the air conditioning wind distribution equipment in the car which can constitute in a compact more and can moreover advance space-saving-ization further, without solving an above-mentioned technical problem and making small the air duct cross section of a rotary door.

[0010]

[Translation done.]

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MEANS

[Means for Solving the Problem]

In order that the air conditioning wind distribution equipment in the car concerning this invention may solve the above-mentioned technical problem, in invention according to claim 1 The 1st change door and the 2nd change door are constituted so that the 1st change door may be approached and the 2nd change door may be arranged, while forming in the cross-section abbreviation KO typeface which is equipped with the head-lining section connected with the end of a both-sides wall and a both-sides wall by intersecting perpendicularly, respectively, and has an air duct in between.

[0011]

And said 2nd change door is arranged so that a polymerization may be carried out to the concave section or the notching section formed in said 1st change door for a part.

[0012]

According to this, the air ventilated through the evaporator or the heater core is ventilated by one of exit cones by the 1st change door. For example, when three exit cones are arranged, the 1st change door will change two exit cones and other one exit cone, and the air ventilated by two exit cones will be further ventilated toward one of exit cones between two exit cones opened by the 2nd change door.

[0013]

Under the present circumstances, although a polymerization is carried out and it is arranged, since the overlapping part with the 2nd change door has a concave or a notch and is formed, a part of 1st change door and 2nd change door can arrange the 1st change door, without narrowing the air duct of the 1st change door. Therefore, it can ventilate without decreasing most capacity of the air which passes along the air duct of the 1st change door, and, moreover, the part of the 1st change door and the 2nd change door which carries out a polymerization a part, and equipment can be constituted in a compact.

[0014]

moreover, from said concave section being formed by constituting the flank of said 1st change door in the two-step wall of the outer wall section and the wall section according to invention according to claim 2 While being able to constitute the air duct of the 1st change door, without decreasing so much, the polymerization of the 1st change door and the 2nd change door can be carried out only by narrowing some both-sides walls of the 1st change door, and that much compact air conditioning wind distribution equipment can be offered.

[0015]

moreover, from according to invention according to claim 3, forming so that said letter section of beveling may cut the corner of a head-lining wall and a both-sides wall in the shape of beveling and may lack it the part which the reduction area which decreases by beveling a corner does not enlarge percentage reduction of the gross area of an air duct so much, and is in the condition which maintained mostly the blast weight which passes along an air duct, and carries out the polymerization of the 1st change door and the 2nd change door -- compact air conditioning wind distribution equipment can be offered.

[0016]

Moreover, cost reduction can be planned, while according to invention according to claim 4 not manufacturing two kinds of change doors and improving the effectiveness on management, since the 1st change door and the 2nd change door are the same configurations.

[0017]

[Embodiment of the Invention]

Hereafter, 1 operation gestalt of this invention is explained based on a drawing.

[0018]

In order to be able to use it suitably as air conditioning wind distribution equipment for cars and to arrange the change door for exit cones by space-saving, the air conditioning wind distribution equipment of an operation gestalt is what improved a part of conventional rotary door, and is used.

[0019]

The air conditioning wind distribution equipment 1 of an operation gestalt is equipped with the evaporator room 3 and the heater core room 4 which have been arranged in a case 2, and the air mix room 5 as shown in drawing 1. Air ventilated from the Blois room which does not arrange and illustrate an evaporator 31 in the evaporator room 3 is made into cold by the evaporator 31, air which it is made to send to the heater core room 4 or the air mix room 5, has arranged the heater core 41 in the heater core room 4, and turned into cold at the evaporator room 3 is made into pre-heating, and it enables it to send to the air mix room 5. And the rotatable air mix door 6 is arranged and it enables it to divide the heater core room 4 or the air mix room 5 possible [closing motion] by the air mix door 6 between the evaporator room 3, the heater core room 4 and the evaporator room 3, and the air mix room 5.

[0020]

An exit cone 7 is formed in the three directions, and the 1st rotary door 8 and the 2nd rotary door 9 which open and close each exit cone 7 are arranged rotatable at the air mix room 5. Exit-cone 7 for DEF A by which each exit cone 7 in an operation gestalt is arranged between contact wall 2a within a case 2, and 2b sequentially from the upper part among drawing 1, It is formed as exit-cone 7C for FOOT arranged in contact wall 2b, exit-cone 7 for FACE B arranged among 2c and contact wall 2c, and 2d. Exit-cone 7A for DEF and exit-cone 7B for FACE are formed as primary exit-cone 7D which doubles and is arranged between contact wall 2a and 2c. And exit-cone 7A for DEF and exit-cone 7B for FACE are arranged at them of primary exit-cone 7D.

[0021]

The 1st rotary door 8 is arranged so that primary exit-cone 7D and exit-cone 7C for FOOT containing both exit cones with exit-cone 7B for exit-cone 7 A-FACE for DEF may be changed. It is arranged so that the both-sides wall 81-81 (refer to drawing 2) of the 1st rotary door 8 may be straddled, and the 2nd rotary door 9 is arranged so that exit-cone 7A for DEF and exit-cone 7B for FACE may be changed, while it arranges a shank 93 (refer to drawing 2) in upstream exit-cone 7D.

[0022]

The 1st rotary door 8 by the 1st gestalt has the both-sides wall 81-81, the head-lining wall 82, and a shank 83-83, as shown in drawing 2 -3, the cross section of a longitudinal direction is formed in an abbreviation U shape, and the edge periphery of the both-sides wall 81-81 and the head-lining wall 82 is equipped with the seal member 84. While a side attachment wall 81 has outer wall section 81a and wall section 81b by the shape of an abbreviation triangle and is formed a ** with two steps of stages, a head-lining wall side is formed as the concave section 85. As for the concave section 85 of a side attachment wall 81, it is desirable to form so that it may have the clearance which can insert the side attachment wall of the 2nd rotary door 9. Opening formed between the both-sides wall 81-81 and the head-lining wall 82 is formed as an air duct 86, and serves as a path as the ventilated air.

[0023]

The 2nd rotary door 9 of the 1st gestalt has the both-sides wall 91-91, the head-lining wall 92, and a shank 93-93, the cross section of a longitudinal direction is formed in an abbreviation U shape, and the edge periphery of the both-sides wall 91-91 and the head-lining wall 92 is equipped with the seal member 94. The side attachment wall 91 is formed in the shape of an abbreviation triangle. Opening formed between the both-sides wall 91-91 and the head-lining wall 92 is formed as an air duct 96, and

serves as a path as the ventilated air.

[0024]

And with the 1st operation gestalt, while the 1st rotary door 8 and the 2nd rotary door 9 are arranged toward this direction, a polymerization is carried out a part and the 2nd rotary door 9 is arranged so that the both-sides wall 91-91 may insert in the concave section 85-85 of the both-sides wall 81-81 of the 1st rotary door 8. Therefore, the head-lining wall 82 of the 1st rotary door 8 will be inserted into the air duct 96 of the 2nd rotary door 9.

[0025]

The concave section 85 formed in the 1st rotary door 8 As are shown in drawing 2 , and the joint of outer wall section 81a and wall section 81b which are formed in two steps may be formed in the shape of [of a right angle] L character and it is shown in drawing 4 You may form so that L character-like pars-basilaris-ossis-occipitalis 81c may be inclined, and it curves and you may make it form 81d of L character-like partes basilaris ossis occipitalis further, as shown in drawing 5 .

[0026]

The 1st rotary door 8 is arranged rotatable to the location where the front face of the seal member 84 with which the right end face is equipped contacts 2d of contact walls from the location where the front face of the seal member 84 with which the left end side is equipped focusing on the shank 83 in the air mix room 5 contacts contact wall 2a, as shown in drawing 1 .

[0027]

In addition, in the condition that the front face of the seal member 84 at the left end of the 1st rotary door 8 is in contact with contact wall 2a, the rear face of a right end seal member will be in contact with contact wall 2c, and intercepts primary diffuser 7D by the head-lining wall 82 and the side attachment wall 81. Moreover, in the condition that the front face of the seal member 84 of the right end face of the 1st rotary door 8 is in contact with 2d of contact walls, the rear face of the seal member 84 of the left end side of the 1st rotary door 8 will be in contact with contact wall 2c, and intercepts exit-cone 7C for FOOT by the head-lining wall 82 and the side attachment wall 81.

[0028]

The 2nd rotary door 9 is arranged rotatable to the location where the front face of the seal member 94 with which the right end face is equipped contacts contact wall 2c from the location where the front face of the seal member 94 with which is arranged in the air mix room 5 at them of the 1st rotary door 8, and the left end side is equipped focusing on the shank 93 contacts contact wall 2a.

[0029]

In addition, in the condition that the front face of the seal member 94 at the left end of the 2nd rotary door 9 is in contact with contact wall 2a, the rear face of a right end seal member will be in contact with contact wall 2b, and intercepts diffuser 7A for DEF by the head-lining wall 92 and the side attachment wall 91. Moreover, in the condition that the front face of the seal member 94 of the right end face of the 2nd rotary door 9 is in contact with contact wall 2c, the rear face of the seal member 94 of the left end side of the 2nd rotary door 9 will be in contact with contact wall 2b, and intercepts exit-cone 7B for FACE by the head-lining wall 92 and the side attachment wall 91.

[0030]

Next, an operation of the air conditioning wind distribution equipment 1 formed as mentioned above is explained.

[0031]

The air ventilated from Blois which is not illustrated turns into cold through an evaporator 31, and flows in the heater core room 4 or the air mix room 5. Under the present circumstances, when ventilating the vehicle interior of a room in cold, it rotates clockwise and the air mix door 6 is made to contact contact wall 2e within a case 2 among drawing 1 . Then, the heater core room 4 is intercepted and cold flows into the direct air mix room 5. Moreover, when ventilating the vehicle interior of a room in pre-heating, a counterclockwise rotation is rotated and the air mix door 6 is made to contact 2f of contact walls among drawing 1 . Then, the air mix room 5 is intercepted by the air mix door 6, by cold's flowing into the heater core room 4, and passing the heater core 41, is replaced with pre-heating and flows into the air

mix room 5 from the heater core room 4. Furthermore, when ventilating the vehicle interior of a room in the mixed thing of cold and pre-heating, the air mix door 6 is rotated to the contact walls [2e and 2f] mid-position. In this case, the air mix door 6 is brought close to the contact wall 2e side to strengthen cold, and the air mix door 6 is brought close to 2f side of contact walls to strengthen pre-heating. Then, a part flows in the heater core room 4, the cold which passed along the evaporator 31 flows in the air mix room 5 as pre-heating through the heater core 41, and other parts flow in the direct air mix room 5 with cold. At the air mix room 5, cold and pre-heating are mixed, and it becomes moderate temperature, and is ventilated by the vehicle interior of a room.

[0032]

Next, the air which flowed into the air mix room 5 will blow off to each exit-cone 7 empty-vehicle interior of a room with the rotation location of the 1st rotary door 8 or the 2nd rotary door 9.

[0033]

When blowing off air to a windshield, the 1st rotary door 8 is clockwise rotated among drawing 1 , 2d of contact walls is contacted in the right end seal member 84, and the 2nd rotary door 9 is rotated clockwise and the right end seal member 94 is made to contact contact wall 2c. While intercepting exit-cone 7C for FOOT with the head-lining wall 82 of the 1st rotary door 8 and ventilating primary diffuser 7D by this, exit-cone 7B for FACE is intercepted with the head-lining wall 92 of the 2nd rotary door 9, and cold, pre-heating, or mixed air is blown off from exit-cone 7 for DEF A toward a windshield. That is, it is mixed with the pre-heating by which only cold passed along the heater core room 4 through the air duct 86 of the 1st rotary door 8, and the cold which flowed into the direct air mix room 5 through the evaporator 31 blows off to the vehicle interior of a room through exit-cone 7A for primary exit-cone 7D and DEF.

[0034]

Next, when blowing off air to a passenger's face, the 1st rotary door 8 is clockwise rotated among drawing 1 , 2d of contact walls is contacted in the right end seal member 84, and the 2nd rotary door 9 is rotated counterclockwise and the left end seal member 94 is made to contact contact wall 2a. While intercepting exit-cone 7C for FOOT with the head-lining wall 82 of the 1st rotary door 8 and ventilating primary diffuser 7D by this, exit-cone 7A for DEF is intercepted with the head-lining wall 92 of the 2nd rotary door 9, and cold, pre-heating, or mixed air is blown off from exit-cone 7 for DEF A toward a passenger's face side. That is, it is mixed with the pre-heating by which only cold passed along the heater core room 4 through the air duct 86 of the 1st rotary door 8, and the air duct 96 of the 2nd rotary door 9, and the cold which flowed into the direct air mix room 5 through the evaporator 31 blows off to the vehicle interior of a room through exit-cone 7B for primary exit-cone 7D and FACE.

[0035]

under the present circumstances, from more the air capacity which blows off to a face side than the air capacity which blows off to a step or a windshield Although the amount of openings of the air duct 86 of the 1st rotary door 8 cannot be made small, the part as for which the 2nd rotary door 9 is carrying out the polymerization to the 1st rotary door 8 Since it is a part of concave sections 85 of the side attachment wall 81 of the 1st rotary door 8, the decrement of the amount of openings of an air duct 86 is made small, and air capacity is not decreased so much. And the concave section 85 does not decrease the amount of openings of an air duct 86 by this, either, without making high the projection height from the pars basilaris ossis occipitalis of the contact walls [of the case 2 which contacts when the 1st rotary door 8 rotates / 2a and 2d] case 2, since the height of the whole 1st rotary door 8 is not made low.

[0036]

Next, when blowing off air underfoot, the 1st rotary door 8 is rotated to the inside of drawing 1 , and a counterclockwise rotation, and the left end seal member 84 is made to contact contact wall 2a. Since the 2nd rotary door 9 is intercepting primary exit-cone 7D with the head-lining wall 82 of the 1st rotary door 8 in this condition, it is uninfluential even if it is in which location. By this, cold, pre-heating, or mixed air blows off underfoot through exit-cone 7C for FOOT. That is, it is mixed with the pre-heating by which only cold passed along the heater core room 4 through the air duct 86 of the 1st rotary door 8, and the cold which flowed into the direct air mix room 5 through the evaporator 31 blows off to the

vehicle interior of a room through exit-cone 7C for FOOT.

[0037]

In addition, blow off of air is performed in five steps of modes, and the mode of F/D which blows off to both by the side of the bilevel (B/L) and step which blow off to both by the side of the face and a step other than the mode of the above-mentioned three-stage, and a windshield is usually formed. In the case of a bilevel, the 1st rotary door 8 is arranged to the contact walls [2a and 2d] mid-position, and it rotates the 2nd rotary door 9 in the location (condition which contacts contact wall 2a in the left end seal member 94) where exit-cone 7A for DEF is intercepted. The cold, the pre-heating, or the mixed air which flowed in the air mix room 5 passes upstream exit-cone 7D by one side, is ventilated by exit-cone 7B for FACE, and is ventilated on the other hand by this at exit-cone 7C for FOOT.

[0038]

Moreover, in blowing off to both a step and a windshield (F/D), the 1st rotary door 8 is arranged to the contact walls [2a and 2d] mid-position, and it rotates the 2nd rotary door 9 in the location (condition which contacts contact wall 2b in the right end seal member 94) where exit-cone 7B for FACE is intercepted. The cold, the pre-heating, or the mixed air which flowed in the air mix room 5 passes upstream exit-cone 7D by one side, is ventilated by exit-cone 7A for DEF, and is ventilated on the other hand by this at exit-cone 7C for FOOT.

[0039]

As mentioned above, the air mix door 6 arranges the air which turned into cold through the evaporator 31 so that it may change to the heater core room 4 and the air mix room 5, and in the air mix room 5, it constitutes it from air conditioning wind distribution equipment 1 of an operation gestalt so that it may change, respectively at two rotary doors (the 1st rotary door 8 and the 2nd rotary door 9) approached and arranged to three exit cones 7. Since it is made to arrange further so that the polymerization of the 1st rotary door 8 and the 2nd rotary door 9 may be carried out while being able to form the compact case 2 and being able to attain space-saving-ization by this, a case 2 can be further formed in a compact.

[0040]

And by making the side attachment wall 81 of the 1st rotary door 8 into the ** with two steps of stages of outer wall section 81a and wall section 81b, and forming the concave section 85, in case the polymerization of the 1st rotary door 8 and 2nd rotary door 9 is carried out Since reduction of the cross section of the air duct 86 of the 1st rotary door 8 was formed slightly, it can form in a compact, without decreasing so much the air capacity which blows off to the FOOT side through an air duct 86. And since the concave section 85 does not make the height of the 1st rotary door 8 low, it does not have to make high the projection height from the pars basilaris ossis occipitalis of the contact walls [of a case 2 / 2a and 2d] case 2, and does not decrease the amount of openings of an air duct 86 by this.

[0041]

Next, the 1st rotary door 10 by the 2nd gestalt forms the letter section 15 of beveling in the articulated section of the both-sides wall 11-11 and the head-lining wall 12, as shown in drawing 6, and the cross-section configuration of a longitudinal direction is formed in the abbreviation U shape by the both-sides wall 11-11 by the shape of an abbreviation triangle like the 1st rotary door 8 of the 1st gestalt. The shank 13-13 rotating around the 1st rotary door 10 is arranged, and opening between the both-sides wall 11-11 and the head-lining wall 12 is formed in the edge of the both-sides wall 11-11 as an air duct 16.

[0042]

And the 2nd rotary door is the same as that of the 2nd rotary door 9 of the 1st gestalt, and the both-sides wall 91-91 and shank 93-93 of the 2nd rotary door 9 will carry out a polymerization to the letter section 15 of beveling of the 1st rotary door 10. Therefore, at the 1st rotary door 10 of this gestalt, since the part in which the letter section 15 of beveling is formed, and an air duct 16 are only decreased, there is little reduction of the whole amount of openings, and there is little reduction of the air capacity which blows off from exit-cone 7 for FACE B by this. And in the letter section 15 of beveling, the 2nd rotary door 9 can form in a compact the part and equipment which carry out a polymerization, and can attain space-saving-ization.

[0043]

As the 2nd rotary door makes the same configuration as the 1st rotary door and the rotary door by the 3rd gestalt is shown in drawing 7 -8 If the side attachment wall 81 of the 1st rotary door 8 has outer wall section 81a and wall section 81b and forms the concave section 85 While the 2nd rotary door 20 also has the both-sides wall 21-21 and the head-lining wall 22, a longitudinal direction cross-section configuration is formed in an abbreviation U shape and opening between the both-sides wall 21-21 and the head-lining wall 22 is formed as an air duct 26 A side attachment wall 21 is formed in the shape of an abbreviation triangle, and forms the concave section 25 between outer wall section 21a and wall section 21b.

[0044]

The both-sides wall 21-21 will insert the 2nd rotary door 20 of this gestalt in the concave section 85 of the 1st rotary door 8, it will carry out the polymerization of the 1st rotary door 8 and the 2nd rotary door 20 in part, and it will be arranged.

[0045]

Therefore, by forming the 2nd rotary door 20 of this gestalt in the same configuration as the 1st rotary door 8, components can be made to serve a double purpose, and while improving the effectiveness on management, cost reduction-ization can be attained.

[0046]

In addition, although the air duct 26 of the 2nd rotary door 20 will decrease by making the 2nd rotary door 20 into the same configuration as the 1st rotary door 8, like the 1st rotary door 8, the percentage reduction is slight and does not influence the whole air capacity so much.

[0047]

Moreover, in the 3rd gestalt, if the 1st rotary door forms the letter section 15 of beveling in the articulated section between the both-sides wall 11-11 and the head-lining wall 12 as shown in drawing 6, of course, the 2nd rotary door 20 will form the letter section of beveling.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the simple flat-surface sectional view showing the air conditioning wind distribution equipment by one gestalt of this invention.

[Drawing 2] It is the simple front view showing the polymerization condition of the 1st rotary door and the 2nd rotary door in drawing 1 .

[Drawing 3] It is a simple side elevation in drawing 2 .

[Drawing 4] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 5] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 6] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 7] It is the simple front view showing another gestalt of the polymerization condition of the 1st rotary door and the 2nd rotary door.

[Drawing 8] It is a simple side elevation in drawing 7 .

[Drawing 9] It is the simple top view showing conventional air conditioning wind distribution equipment.

[Drawing 10] It is the simple top view showing the conventional new air conditioning wind distribution equipment which improved conventional air conditioning wind distribution equipment.

[Drawing 11] It is the perspective view showing the rotary door used for the air conditioning wind distribution equipment of drawing 10 .

[Drawing 12] It is the simple front view showing the polymerization condition of the 1st rotary door and the 2nd rotary door in drawing 11 .

[Description of Notations]

1 Air Conditioning Wind Distribution Equipment

2 Case

3 Evaporator Room

4 Heater Core Room

5 Air Mix Room

7 Exit Cone

7A The exit cone for DEF

7B The exit cone for FACE

7C The exit cone for FOOT

7D Primary exit cone

8 Ten The 1st rotary door

9 20 The 2nd rotary door

11, 21, and 81 Side attachment wall

11a, 21a, and 81a Outer wall section

11b, 21b, and 81b Wall section
12, 22, and 82 Head-lining wall
15 Letter Section of Beveling
25 85 Concave section
16, 26, 86, and 96 Air duct

[Translation done.]

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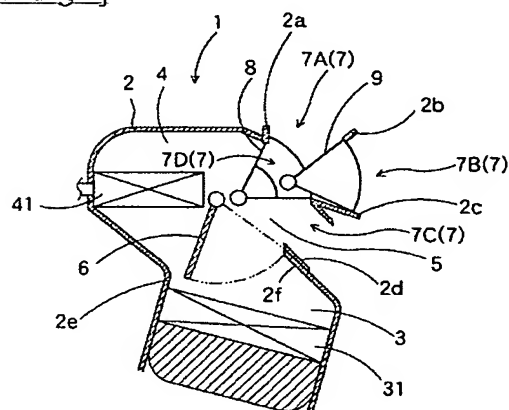
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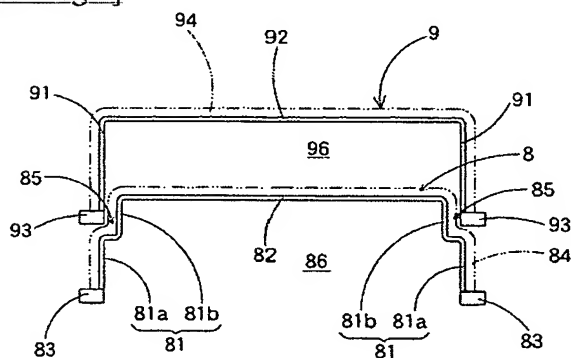
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DRAWINGS

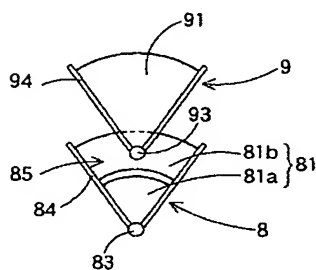
[Drawing 1]



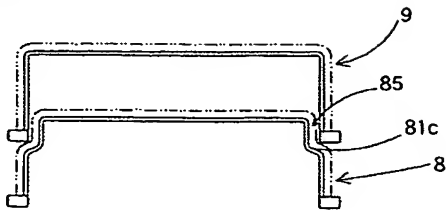
[Drawing 2]



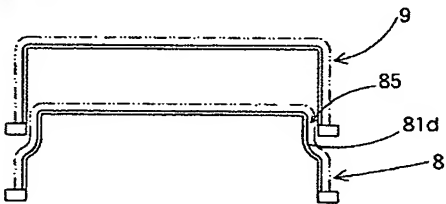
[Drawing 3]



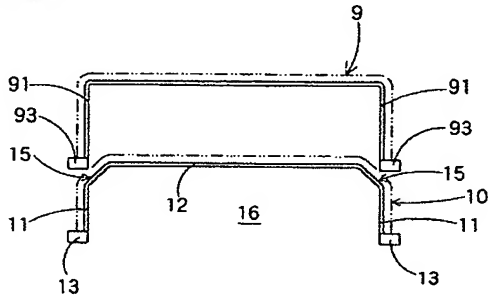
[Drawing 4]



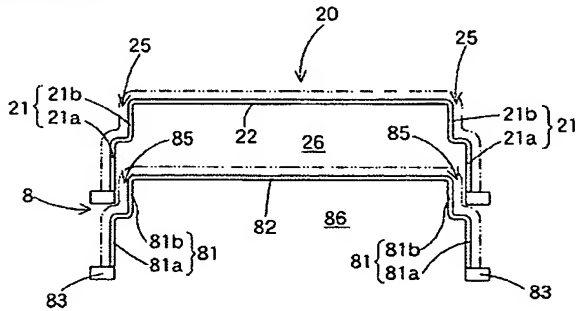
[Drawing 5]



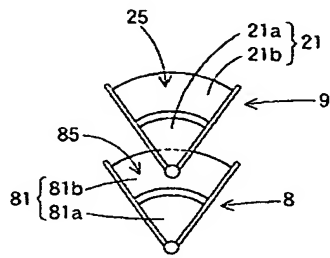
[Drawing 6]



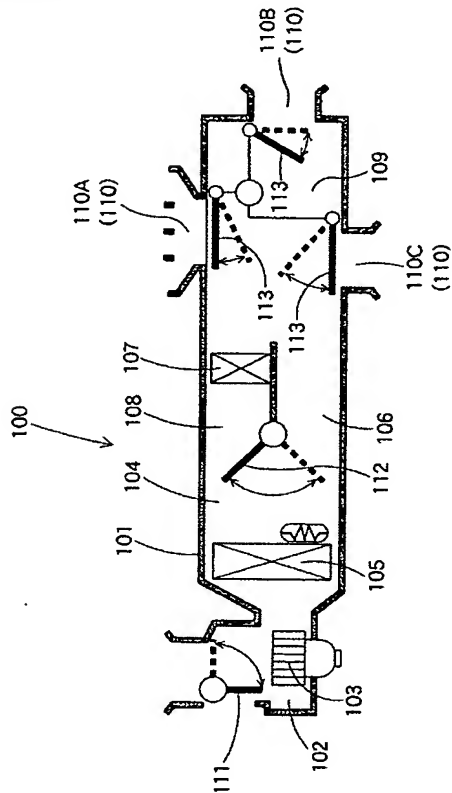
[Drawing 7]



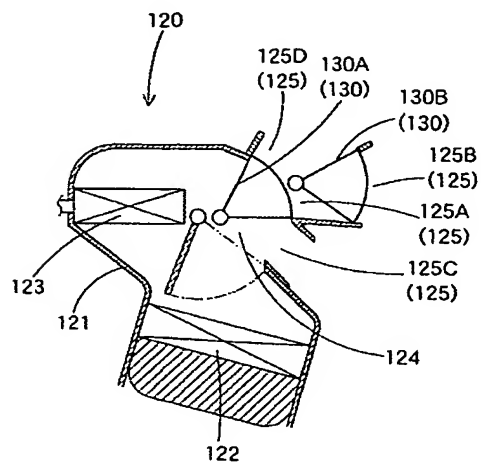
[Drawing 8]



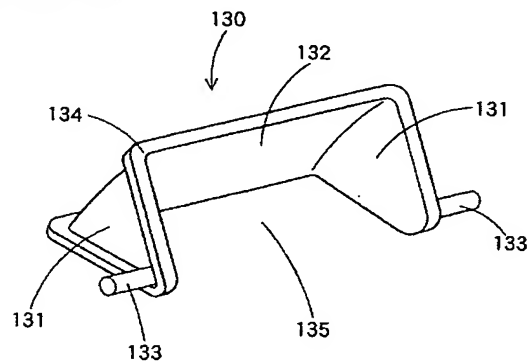
[Drawing 9]



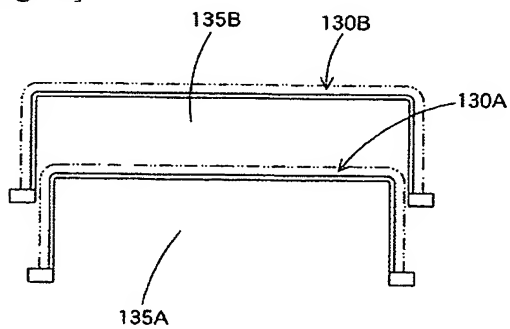
[Drawing 10]



[Drawing 11]



[Drawing 12]



[Translation done.]